

## ABSTRACT OF THE DISCLOSURE

An optical transmission device configured as a central node, wherein each central node has dedicated pixels for receiving data and transmitting optical data so destination addressing is not required. The network is configured such that transmission on any particular receiver reserved pixels results in data being sent to a predetermined node. In particular, the star topology is configured as a receiver reserved scheme. The device is formed by constructing central node of transmitters and receivers that are attached to a silicon substrate with a processing means, and the optical interface to the transmitters and detectors on the central node establish a one-to-one correspondence with an individual fiber optic cable. The fiber optic cables are reconfigurable to different topologies or interconnections as each fiber optic cable has a known destination on the central node. Various topologies are possible using a star node as the building block.